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## Who we are

PRESTO-RUS was established in 1998 and since then has become the leading Russian manufacturer of geosynthetics. The company specializes in production and supply of geocells and their components supporting different industries, such as civil construction, industrial engineering and others.

## What we do

PRESTO-RUS is a unique company that differs from other producers in the industry by the fact that it carries out the whole range of activities associated with the use of geocells:

- Development of project documents and standard technical documents.
- Development of new designs and advanced technical solutions with the use of geocells.
- Expert review of estimate standards for construction with the use of geocells.
- Field supervision and engineering support of the constructed facilities.
- Erection supervision work with the use of geocells.
- Education, training and consulting of contractors and engineering organization.
- Delivery of geocells with the components to the worksite.
- Construction.
- Integrated application of geosynthetics.

## Why PRESTO-RUS

- Low prices for high quality.
- Presence of patents and certificates.
- Compliance with environmental requirements.
- Experience in construction engineering, development engineering, design and installation of facilities with the use of geocells in different climate zones.
- Technical and customer support.
- Wide range of services – from delivery to installation and construction works.

# Three-dimensional cell PPR GW

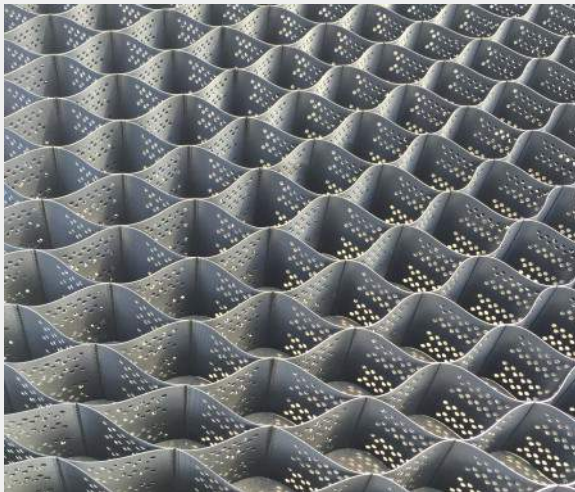
PPR GW is a geocell cellular confinement system made of polymeric tapes interconnected with each other by linear seams in a staggered order. PPR GW is made of high-density polyethylene or its components and is shaped as sections of a certain size.

## Appliance:

- Reinforcement of earthworks, industrial and civil constructions.
- Construction and reinforcement of roads and road pavements.
- Strengthening of retaining walls and slopes, protection of pipe systems and channels.
- For usage in transportation systems, hydro-engineering, oil and gas and other construction industries.

## Advantages:

- Increases the effectiveness of anti-erosion protection.
- Reduces the construction area by increasing slope ramps.
- Highly reliable and easy in installation.
- Eco-friendly and, unlike concrete structures, do not inhibit the growth of vegetation.
- Due to a greater degree of perforation geocells have high-performance drainage properties.



	Properties	Value						
1	Cell size per side (mm) $\pm 10\%$	165X165	200X200	210X210	220X220	250X250	330X330	420X420
2	Diagonal size (mm) $\pm 10\%$	200X200	280X280	290X290	300X300	350X350	400X400	600X600
3	Diagonal size (mm) in fact $\pm 10\%$	244	300	300	330	353	488	630
4	Cell size per side (mm) in fact $\pm 10\%$	205	254	272	280	353	410	540
5	Cell height (mm) $\pm 10\%$	50/75/100/150/200/300						
6	Expanded section length (mm) $\pm 5\%$	6150	6350	6250	5600	10590	12300	8100
7	Expanded section width (mm) $\pm 5\%$	2440	2400	2400	2640	2470	2440	2520
8	Expanded section area (m <sup>2</sup> ) $\pm 5\%$	15	15.24	15	14.78	26.1	30	20.41



## Flexible concrete slab GEOSOTY®

Flexible concrete slab GEOSOTY® was developed in order to solve particularly complex problems. GEOSOTY® is a flexible structure made of a 3D dimensional polymer geocell with the cells fixed with a polyamide cord and filled with concrete of various brands.

Additional reinforcement of concrete slab with a polyamide cord improves strength properties of a structure and provides slinging and binding.

Concrete slab combines such qualities as flexibility and resistibility. This makes it possible to use the bay for reinforcement of camber surfaces as well as in complex permafrost conditions.

# Weld-free three-dimensional cell GEOSTEP®

Weld-free three-dimensional cell GEOSTEP® represents a concept of a completely new solution to soil stabilization on the slopes.

GEOSTEP® is made of polymeric strips with longitudinal cuts ending with oblong holes. These cuts are performed in such a way that when stretched on a slope the cellular construction can be filled with fractionated or granular materials. This design is the intellectual property of PRESTO-RUS.

#### Advantages:

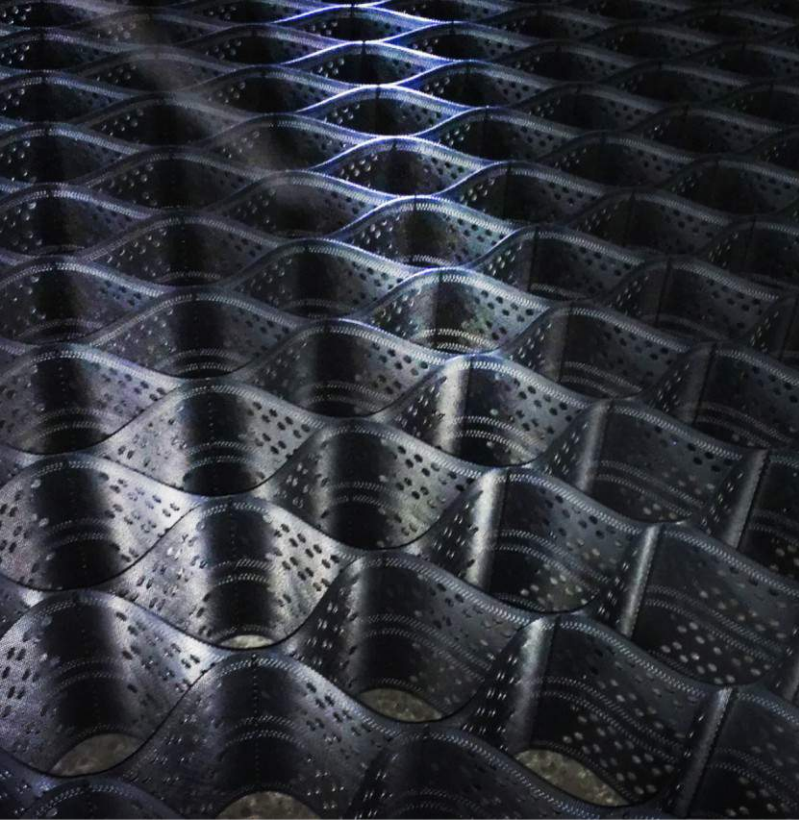
- Reduced construction cost up to 50% by contrast to a standard geocell.
- Reduced washout/spilling of fill material from the geocell.
- Reduced downward shift of the geocell.
- Increased drainage capacity.
- Simplified technical process of installation.

#### Appliance:

- Strengthening of the coastlines and river basins.
- Strengthening of the slopes.
- Strengthening of the oil and gas pipelines bunds.
- Landscape design.
- For lifting purposes.
- For advertising purposes.







## Innovative three-dimensional cell GEOKORD®

The main difference between GEOKORD® and other geocells is in implementation of continuous extra high strength reinforcing fibres what makes constructions stronger and adds stability to geometrical characteristics.

### Advantages:

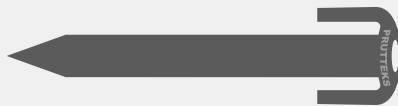
- Strength properties of PPR GEOKORD® with a 1,35 mm thick tape are the same or even exceed the characteristics of a standard 3D geocell with a 1,6-1,8 mm thick tape, what saves up to 20% of cost of materials.
- High resistance to dynamic and static loads.
- The material retains geometrical dimension and shows good flow characteristics.
- Improved drainage properties (innovative perforation).
- Useful life is now up to 70 years.

### Appliance will make it possible to:

- Save up to 20% of cost of materials.
- Reduce thickness of structural layers and road pavement.
- Reduce thickness of railway ballast and roadbed.
- Cut the likelihood of settlement of the fill in weak base areas.
- Protect a construction from high static and dynamic loads.
- Increase scheduled repair period.
- Increase drainage properties of a construction.
- Increase useful life of a construction.

# Components

In order to fix geocells you need some components – anchors, cords, staplers, clips – which we also supply.



## 1. Anchor PRUTTEKS®

### Appliance:

Anchors are usually used to fix geocells and other geosynthetics (geotextiles, geogrids) in construction and operation of road embankments, embankment pipelines, bridges cones in the areas of oil and gas pipelines. Anchors can also be used to fix plastic panels, plasterboards and other sheet materials.

### Characteristics:

- Length: 50 to 80 cm.
- Package: 100 units per packet.
- Color: sandy, green and classic black.
- Made of environmentally friendly, impact-resistant, cold-resistant compositions based on polypropylene.
- Anchors have sufficient strength, are not exposed to corrosion, chemical compounds and alkali which are usually presented in groundwater.
- Plastic anchors can be used at temperatures from -60 to +40C°
- Plastic anchor is more corrosion-resistant and 20-30% cheaper than metal anchor.

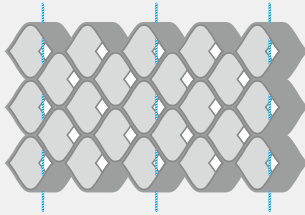


## 2. ATR–clip

ATR-clip is a plastic cap on a deformed reinforcement. ATR-clip connects sections of a geocell, as well as fixes geocell upon installing it. ATR-clip fits both plastic and metal anchor. Its characteristics are similar to those of the anchor PRUTTEKS® as they are both made of identical materials.

# Components

In order to fix geocells you need some components – anchors, cords, staplers, clips – which we also supply.



## 3. Polyamide cord

This element helps to uniform load distribution between the individual sections of geogrid laid on the slope surface.

### Appliance:

- Serves as a fastener of geocells.
- Fixing lifting and handling loads.

### Characteristics:

- High strength.
- Increased flexibility.
- Resistance to abrasion and significant impact loads.
- Resistance to decay and alkalis.



## 4. Stapler and staples

### Appliance:

- Stitches individual modules of geocells together is necessary to form a single large-scale canvases.
- Modules are sewn on the perimeter. Seaming is made with an all-band metal U-shaped bracket that has a corrosion-resistant zinc coating.

### Advantages:

- Reduces the risk of deformation of the coating in the joints of the individual geocells modules.
- Pneumatic stapler does not require physical efforts.
- Increased installation speed.



# Slope protection system

Generally, traditional methods of slope protection do not provide immediate protection from water and wind erosion. Destruction of vegetation cover leads to a rapid slope erosion, resulting in formation of rain channels, deans, etc. Constructions by PRESTO-RUS firmly fix soil on the slopes until turfing incrustation and slow down surface water flow velocity on the chutes. Geocells filled with filler materials strengthen slopes of such a gradient at which the material itself can't be retained. In order to reduce direct costs on design and improve construction performance our experts have developed and introduced plastic anchor PRUTTEKS® and ATR- clip.

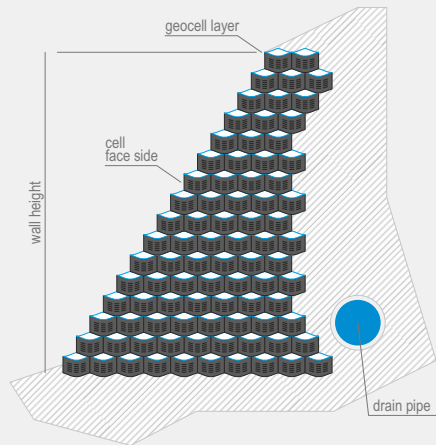


# Retaining walls

The main problem when constructing retaining walls in the areas of almost vertical slopes is to create a design resistant to static and dynamic loads as well as to erosion. The design developed by PRESTO-RUS holds both retaining walls and side pressure of the soil mass. Due to elasticity the construction has unique seismic characteristics. Depending on the height of the wall, the construction with the use of geocells saves from 25% to 50% on construction as compared to concrete structure.

Our experience:

Geocells designed by PRESTO-RUS were used on the Beregovaya compressor station of the Blue Stream gas pipeline for construction of retaining walls. The geocells have shown high reliability in terms of seismicity (up to 9-level magnitude on the Richter scale).

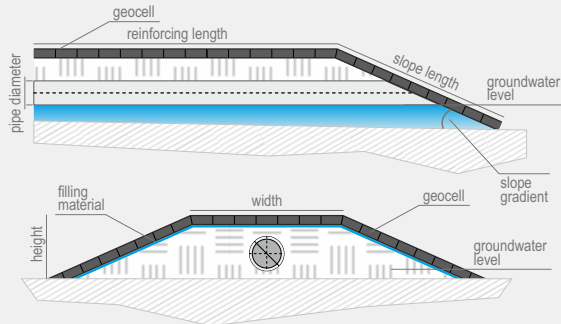


# Transfer pipeline arrangement, oilfield construction and site development

When designing the new fields in the Far North several problems associated with the poor quality of local mineral materials turn up. In order to solve such problems PRESTO-RUS developed and implemented several types of designs for the construction of:

- Pipelines and underwater crossings with weigths.
- Embankment for LNG processing installatio.
- Access roads to stern platforms and block valve stations.
- Slopes and embankments of block valve stations.
- Slopes when laying the pipeline in the highlands.
- Embankment slopes and exit nodes of transfer pipelines.
- Retaining walls.
- Dirt fill base on soft ground surfaces (including swamps).
- Temporary and route roads.
- Helipads.

The developed designs are also used for erosion elimination of embankment slopes of transfer pipelines.





# Road construction

Increased road traffic and as a result increased roadway load are the main problems associated with roads. PRESTO-RUS offers a number of solutions which provide increased reliability and constructability, significantly reduce material intensity and cost of road maintenance.

## Appliance:

- In pavement construction (embankment base, embankment mass, etc. – also applicable to forest roads).
- In construction of fill base on soft grounds.
- In slope protection construction.
- In retaining walls.
- In bridge abutment strengthening.
- In construction of road surface drainage (strengthening of road ditches, canals, ravines, etc.).
- In construction of winter and temporary roads.
- Geocells filled with inert materials help to reduce pavement thickness by 30-50% compared to traditional designs, and prevent heaving and rutting during break-up season.





Traditional design



## PRESTO-RUS solution

Highly qualified engineers and workers enables PRESTO-RUS to lay pavement at a speed of up to 500 linear meters per day.

# Roadbed, embankments and pavement

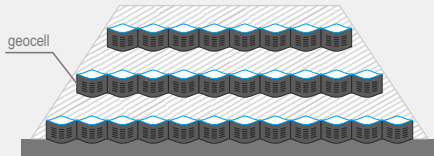
In case of unbalanced base settlement of unstable soils the appliance of geocells is most appropriate.

Appliance:

- In embankment base.
- In embankment mass.
- As horizontal reinforcing layers for extra strength.
- In road pavement.

During construction it is not always possible to design high embankment or deep cut or their design may be too expensive due to several reasons. Application of geocells can reduce the overall thickness of pavement and earthwork height by increasing the elastic modulus of discrete materials placed in geocells and by construction of transition type road topping on an unstable earthwork before the end of its stabilization.

Geocells are also used for reinforcement of railway embankments, dikes and embankments at approaches to bridges and crossovers in order to prevent subsidence and erosion.

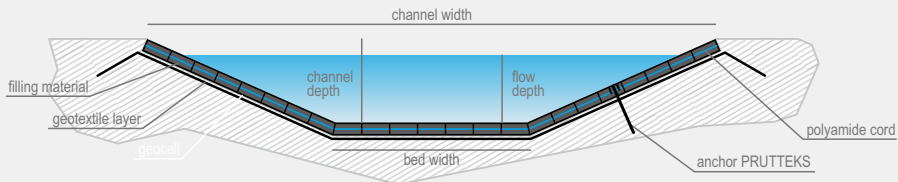






## Strengthening of natural and synthetic streamflows

Natural and synthetic streamflows as well as waterworks with continuous flows of varying intensity can be reliably reinforced with geocells. Depending on the flow, different filler materials are used for constructing streamflows. Plant roots penetrating through the layer of geocells.



# Railway construction

## Solutions:

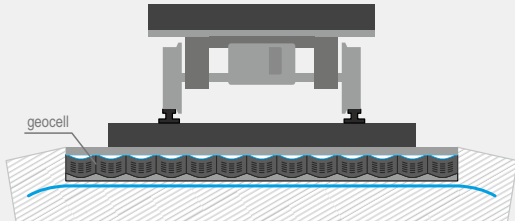
- Reduce axial load.
- Reduce vertical intensity.
- Increase stiffness of subballast layer.
- Slow down the upbuilding process of permanent deformation in roadbed.
- Prevent ballast section subsidence under the influence of vibration.
- Increase scheduled repair period.



# Railway construction

Appliance:

- Soil reinforcement.
- Slope strengthening.
- Bridge abutment strengthening.
- Bridge approach strengthening.
- Ballast layer strengthening.
- Construction of temporary and access roads.
- Construction of retaining walls.
- Culvert protection.
- Strengthening of slopes and embankments is the core problem in railway construction. Layers under high pressure move and deform what results in track structure deformation. Thus, track sections are closed for reconstruction for a long period of time.
- With the use of constructions by PRESTO-RUS it is possible to repair any track section over a short period of time. Geocells prevent groundwork base lateral deformation, strengthen and tighten lower layers of constructions thus making it easier to engineer track structure and stabilizing the whole system.



# Landscaping and Cottage Construction

Typical applications:

- Pinning.
- Pedestrian and cycle lanes.
- Golf courses.
- Football pitches.
- Clay tennis courts.
- Ski slopes.
- Highways.
- Green parking areas.
- Arrangement of flower beds and terraces.
- Underground floor drainage systems.
- Landfill, reservoir and sewage treatment plant liners.

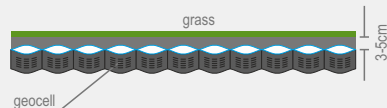






## Landscaping and Cottage Construction

PRESTO-RUS specialists designed and constructed fire access roads in one of the residential areas in Moscow. Geocells were filled with a mixture of gravel and peat and ornamental turf on the top. As a result, these roads withstand heavy machinery being at the same time both eco-friendly and aesthetically pleasing.



# Patents and certificates

PRESTO-RUS has 27 patents on the territory of the Russian Federation, 4 of which are jointly owned with OAO Gazprom. For example:

- Utility patent № 34940 «Road construction with prefabricated concrete slabs»
- Utility patent № 34941 «Asphalt concrete road structure»
- Utility patent № 34944 «Device for slope soil stabilization at the site of landfall»
- Utility patent № 34945 «Device for slope protection of soil structure»
- Utility patent № 42547 «Soil reinforcement device »
- Utility patent № 42834 «Device for strengthening of engineering structures»
- Utility patent № 42835 «Device for strengthening of engineering structures»
- Utility patent № 53345 «Anchor and its inserter»
- Utility patent № 59637 «Bridge with variable vertical stiffness of an approach fill»
- Utility patent № 72989 «Device for protection of industrial sites from saturation, storm-water and spring flood»
- Utility patent № 74646 «Device for protection of industrial sites from flooding»
- Invention patent № 2152480 «Slope and roadbed protection device»

The company has also a number of registered trademarks in the Russian Federation:

- PRESTO®
- PRESTORUS®
- GEOWEB® \*
- GEOKORD®
- GEOSTEP®
- GEOFORCE®
- GEOSOTY®
- GEONIT®
- PRUTTEKS®
- We make this unstable world lasting®

\* PRESTO-RUS holds the license for the GEOWEB® trademark.

PRESTO-RUS has all the necessary certificates, among others - ISO Certificate (9001:2000).



Partners:

